Variations of Prolactin Level in Uremic Male Patients

Nihad Abduljabbar Jalal

college of science, Hayat University for science & Technology

Abstract

The study was carried out on 100 attendants to mean private laboratory in Kirkuk, from beginning of January to the end of November 2011.

The Prolactin hormone and urea level were estimation from uremic male patients.

Prolactin is a glycoprotein synthesized by anterior lob of the pituitary gland. It was responsible to milk secretion. It was found that percentage of prolactin was 57 % in make patients. which was high than in control group. And this may be attributes to high level of urea in serum, due to Acute or chronic Nephritis, Polycystic kidney, Nephro sclerosis, tubular Necrosis and obstruction of urinary Tract.

These disease cause delayed clearance and filtration of prolactin in kidney which was lead to return back to the blood circulation and increased the prolactin concentration.

Introdduction

Prolactin is a glycoprotein with a MW of approximately 23,000 daltons, consisting of 198amino acid. synthesized by the anterior lob of the pituitary gland.

Urea end product of amino acid Catabolism, is synthesized in liver and about 90% eliminated in the urine fluctuates in healthy subjects is depend on the renal function, the nitrogen intake from food, the endogenous protein catabolism ,and the state of hydration and diuresis (1).

A fall in serum urea level to under 2 moml/L in adults and a decrease in urine can be observed in terminal stages of severe hepatic insufficiency, together with hyperammonemia.

Nitorgen retention syndromes a more common occurrence combined with an increase in serum urea in acute and chronic renal insufficiencies ,where serum urea concentration can reach up to 60 mmol/l (2).

In renal disorders ,determination of serum urea is always associated with that of creatinine ,as high serum urea level are not specific to renal disorders and can also be observed in cases of protein _rich diets ,heart disease , dehydration ,diuretic treatment ,nitrogen hyper catabolism (2,3). Hyperprolactinemia has been reported to occur in some patients with chronic or acute renal failure.

Since hyperprolactinemia in subject with normal renal function and uremic male patients may cause impotence and diminished gonadal function (4,5).

Approximately 50% of uremic men complain of erectile dysfunction while an even greater percentage of both men and women complain of decreased libido and a marked decline in frequency of intercourse .

Several hormonal alteration have been described in patients with chronic renal failure (8,9,10)

This study was aimed to show the one factor urea associated with increased level of prolactin in male among people between (27 - 75) years.

Materials and methods

A study was carried out on 100 male patients with documented (20 with acute renal failure,20 chronic and 60 with uremic patients) attended private medical clinics in kirkuk city. Their ages were ranging from (27_75) years old. Hundred male volunteers matched for age were studied. The period of study was form beginning of January to end of November 2011.

A special questionnaire sheet was arranged to get full medical history from each patient, including sex, age, occupation and Dr. diagnosis.

Blood samples were collected from all patients .

The whole blood was kept in a blank tube with out anticoagulant, centrifuged and estimation of prolactin and urea level were done.

The sera were kept at -10C until required .The urea level was measured by (Spectrophotometer APPEL-PD-300 JAPAN) in private medical clinics.

The procedure described by Faucett and patton (11-12). The prolactin level was determined by enzyme linked fluorescent assay using Minividas(bioMereux – VIDAS – 12 ITALIA). T-test was used to compare between patients and control group results.

Procedure of Prolactin test

1- Use one ((PrL)) strip and one ((PRL)) SPR for each sample, control and standard.

2- Addition 200 µL of serum .

3- Insert ((PRL)) strip and ((PRL)) SPRs in to instrument.

Procedure of urea test

1- Addition 1 ml of working reagent (R1+R2) to each blank, standard and assay tube .

2- Addition 5 μ L of D.W for blank tube, 5 μ L of standard to standard tube 5 μ L serum to assay tube .

3- Mixed and wait 4 min at room temperature .

4- Addition 250 µL of R3 for each tube .

5- Mixed . wait for 8 min at 37 $\mathrm{C}^{\mathrm{o}}\,$ read absorbance at 600 nm .

Result

The biochemical parameters estimation including urea concentration is indicated in table (1)and Fig (1). The values of serum urea was significantly higher in patients group (176 \pm 18.5 mg/dl) than control group (34.45+4.9 mg/dl).(p<0.001).there was a significant difference in serum prolactin values between patients group and groups control groups .Their values in patients groups was higher (37.51+14.1 ng/ml) a control groups (7.88 \pm 2.5 ng/ml).(p<0.001).

Table (2) and Fig (2) shows that 43 % of uremic patients had a prolactin within normal range . While 57 % of uremic patients had a prolactin higher than normal range .

Discussion

the results showed that the prolactin level was increased significantly in uremic patients (37.51+14.1 ng/ml).while in control group the prolactin level were not effected and remained within normal range, mean (7.88+2.5 ng/ml) due to delayed clearance and filtration of prolactin hormone in kidney which was lead to return back hormone to the blood circulation. it has been showing that chronic renal failure stimulate a dysregulation of PRL secretion, as

evidenced by resistance of lactotrophs to dopaminergic inhibition, in the presence of uremia, bromocriptine was not very effective at inhibiting PRL secretion (14).

This finding was agreement with that reported by Hayen and Olgard (1976).

Also 43 % of uremic patients had a prolactin level within normal range .while 57 % had abnormal high level of prolactin .which in agreement with that reported by Pocci (1981), Toorians (1997) and molitch (2008).

The urea level in uremic patients was($176 \pm 18.5 \text{ mg/dl}$) which is significantly higher than control groups($34.45\pm4 \text{ mg/dl}$). due to renal disorders.

Table (1): Urea and Prolactin level among patients and control group. mean +S.D

Biochemical test	Patients Group	Control group	t.test	
Urea	176.0+18.5	34.45+4.9	P<0.001	
prolactin	37.51+14.1	7.88+2.5	P<0.001	



Fig 1 shows urea and prolactin level Vs control

groups	Prolactin level ng/ml	Patient No	Percentage %	
1	0 20	43	43	
2	21 40	35	57	
3	4160	5		
4	6180	7		
5	81100	5		
6	>100	5		





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التغيرات في مستوى هرمون البرولاكتين في مرضى الذكور الذين يعانون من ارتفاع اليوريا في الدم

نهاد عبدالجبار جلال

كلية العلوم ، جامعة حياة للعلوم والتكنولوجيا

الملخص

اجريت الدراسة ل 100 من المرضى المراجعين للمختبر الرئيسي الاهلي في كركوك وبأشراف أطباء تخصصين .للفترة من بداية كانون الثاني ولغاية نهاية كانون الاول عام 2011 م .

أجري فحص مستوى تركيز هرمون الحليب (برولاكتين) وكذالك تركيز اليوريا في مرضى الذكور الذين يعانون من زيادة اليوريا في الدم .

البرولاكتين هو كلايكوبروتين تفرز من الغدة النخامية وهي مسؤولة عن انتاج الحليب . وجدت ان نسبة المصابين بفرط افراز هرمون الحليب في الاشخاص الذين يعانون من ارتفاع اليوريا هي 57% وهي اعلى من (قيمه السيطرة) .

وزيادة مستوى اليوريا في الدم عن مستواه الطبيعي يعود الى عدد من الامراض الكلية مثل التهاب الكلية المزمن او الحاد والتهاب الكلية الكيسي ومرضى تصلب الكلية ومرضى النخر الانبوبي الكليوي والتهاب الكبيبات الكليوي وانسداد المجرى البولي وغيرها. وبالتالي يؤدي الى خلل في عمل وظائف الكلية وتأخر في ترشيح وتصفية البرولاكتين مما يؤدي الى رجوعه الى الدم وزيادة تركيزها .

جمعت نماذج الدم من كل المرضى واجريت لهم التحاليل باستخدام جهاز minividas لفحص هرمون الحليب وجهاز Spectrophotometer لقياس تركيز اليوريا في الدم .